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Pervasiveness of *H. Pylori* in Patients A Research Study at a Tertiary Care Center Hospital in Khammam

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ABSTRACT

Helicobacter pylori (H. Pylori) is the main risk factor for peptic ulcer, gastric associated lymphoid tissue and gastric adenocarcinoma. Several studies have revealed H. Pylori association in 70-75% cases of dyspepsia. H. Pylori is found in 80-100% of duodenal ulcers and 60-75% of gastric ulcers. With this background, a study was conducted to document prevalence of H. Pylori in dyspepsia patients in a tertiary care hospital. Material and Methods: A cross sectional study was conducted in a tertiary care hospital in Khammam from January 2020 to December 2020 on 100 purposively selected dyspepsia patients attending Medicine Outpatient department (OPD). Presence of H. Pylori was confirmed after histopathology and microbiological investigations of the endoscopy biopsy sample. Data was entered in Microsoft excel and analysed using Open Epi software. Descriptive statistics and chi square test was applied. Three fourth (75%) of the study participants were males. The mean age of the study participants was 39.25±10.87 years. All the patients presented with upper abdominal pain (100%) followed by nausea/vomiting (94%). Endoscopic findings revealed that three fifth (60%) of the patients had ulcer dyspepsia and two fifth (40%) of them had non ulcer dyspepsia. About 68% of the patients were infected with H. Pylori. A significant association was found between H. Pylori and duodenal ulcers (p 0.001).The overall prevalence of H. Pylori infection in patients of dyspepsia was 68%. The prevalence of H. Pylori was higher in ulcer dyspepsia patients. There was a significant association between H. Pylori and duodenal ulcers (p 0.001).
Keywords: *H. Pylori, Dyspepsia, Endoscopy, Duodenal Ulcer, Gastric Ulcer, Prevalence.*

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INTRODUCTION

Helicobacter pylori (H. Pylori) is a gram negative bacillus that has naturally colonized humans. It is non-invasive and lives in gastric mucus, with a small proportion of the bacteria adherent to the mucosa. The prevalence of *H. Pylori* is more than 80% in most developing countries. *H. Pylori* is usually acquired in childhood. Crowding and poor hygiene in childhood are strong risk factors for *H. Pylori* colonization. Acquisition of *H. Pylori* is unlikely in adulthood [1].

It is the main risk factor for peptic ulceration, gastric adenocarcinoma and gastric mucosa associated lymphoid tissue (MALT) lymphoma. *H. Pylori* colonization induces chronic superficial gastritis in the stomach. The mucosa is infiltrated by both mononuclear and polymorphonuclear cells. This pattern of gastric inflammation has a higher risk of disease. Antral predominant gastritis is mostly linked with duodenal ulceration, whereas pan gastritis is linked with gastric ulceration and adenocarcinoma.1

Dyspepsia is a chronic or recurrent burning discomfort or pain in the upper abdomen and some of the causes are gastroesophageal reflux, peptic ulcer disease and non-ulcer dyspepsia [2].

Various studies have documented an association of *H. Pylori* in 70-75% of dyspepsia patients. Further, few endoscopic studies have documented that, *H. Pylori* is found in 80-100 percent of patients with duodenal ulcers and 60-75 percent of patients with gastric ulcers [3-5].

With this background, we conducted this study to document the prevalence of *H. Pylori* in patients of dyspepsia in our tertiary care hospital.

Objectives of the study were to document the prevalence of *H. Pylori* infection in patients with dyspepsia undergoing upper gastrointestinal endoscopy and to determine the association of *H. Pylori* infection with acid peptic diseases.

MATERIAL AND METHODS

A cross sectional study was conducted on 100 purposively selected patients of dyspepsia attending Medicine Outpatient department (OPD) in a tertiary care hospital in Khammam between January 2020-December 2020. The study participants were enrolled and subjected further to endoscopy. The patients

were divided into two groups of non ulcer dyspepsia and ulcer dyspepsia based on endoscopic findings. Non ulcer dyspepsia group included patients with normal findings and gastritis or duodenitis patients. Ulcer dyspepsia group included patients of duodenal ulcers, gastric ulcers and carcinoma stomach. Patients aged between 18-60 years who had chronic upper abdominal pain with symptoms of dyspepsia such as early satiety, post prandial fullness, burning sensation in the chest were included in the studied. Pregnant and lactating women, patients on proton pump inhibitors, known cases of chronic pancreatitis, patients on NSAIDs for more than a month, patients who have received Anti *H. Pylori* treatment, patients with oesophageal growths on endoscopy and patients who did not consent to take part in the study were excluded from the study.

This study was approved by the institution Ethical committee. Informed consent and confidentiality of the participants: Informed consent of the study participants was taken. The details of the patients were kept confidential and analysed after removal of personal identifiers like name, address etc.

A predesigned semi structured questionnaire was used to collect socio demographic details and details of symptoms. Endoscopy was done using Pentax fibre optic upper Gastrointestinal (G.I) scope and biopsies were taken. Four biopsy specimens were taken from antral area and the pathological site (2 from each site). One specimen from each site was inoculated into freshly prepared urea broth with phenol red as the indicator. The change in colour from yellow to red indicated a positive test. The other two biopsy specimens were subjected to histopathological examination and special staining. A section from each biopsy specimen was stained with Haematoxylin Eosin and another section with Giemsa stain. Presence of *H. Pylori* on either Haematoxylin Eosin or Giemsa stain indicated a positive finding in the specimen.

Outcome Indicators

Primary outcome: Prevalence of *H. Pylori* in patients of dyspepsia after histopathological and microbiological confirmation. Secondary outcome: Association between *H. Pylori* and acid peptic disease (APD).

STATISTICAL ANALYSIS

Data was entered and analysed using Microsoft Excel and open Epi software. Descriptive statistics like frequencies and percentages were used to describe the characteristics of study population and to document the prevalence. Mean and standard deviation was computed. Chi square was done to see the association between *H. Pylori* and acid peptic disease. P value <0.05 was considered to be statistically significant.

RESULTS

About 75% of the study participants were males and 25% of them were females. The mean age of the patients was 39.25±10.87 years. More than half i.e. 54% of the patients belonged to the productive age group of 18-40 years (Figure 1). All the patients (100%) presented with upper abdominal pain. About 94% had complaints of nausea and vomiting, 15% had hematemesis and 8% had complaints of weight loss. Endoscopic findings documented that 60% patients had ulcer dyspepsia and 40% had non-ulcer dyspepsia (Figure 2).About68% of the patients were infected with *H. Pylori*.

Among the 68 patients infected with H. Pylori, 51 (75%) had ulcer dyspepsia and 17(25%) had non-ulcer dyspepsia. Among the 68 positive *H. Pylori* patients, 73.6% were males and 26.4% were females. About 23.5% of them belonged to age group 18-30 years, 27.9% were 31-40 years of age, 30.8% belonged to 41-50 years age group and 17.6% were between age of 51 and 60 years.

Out of the 17 patients with *H. Pylori* in non-ulcer dyspepsia group, 8(47.1%) and 9 (52.9%) had duodenitis and gastritis respectively. Among the 51 *H. Pylori* positive ulcer dyspepsia patients, 28 (54.9%), 17(33.3%) and 6 (11.8%) had duodenal ulcer, gastric ulcer and carcinoma stomach respectively.(Figure 3). There was a significant association between *H. Pylori* and duodenal ulcers (p 0.001).

DISCUSSION

The present study documented the prevalence of *H. Pylori* in100 patients of dyspepsia. About 75% of the participants were males. Similar findings with males being affected more, but in a lower proportion as compared to present study was seen in studies conducted in South western Saudi Arabia (66%), Kuwait (51.4%).6,7 Contradictory findings with higher proportion of females with dyspepsia was documented in studies conducted in Iran (56.6%), Nigeria (54.7%), Uganda (66.7%) and Tanzania (>50%).8-11 The mean age of the participants was 39.25 ±10.87 years. Higher mean age ranging from 40 to 49 years was seen in studies conducted in Iran, Nigeria and Tanzania [8-11]. In the present study, 54% belonged to productive age group of 18-40 years. Similar findings with productive age group being affected with dyspepsia were noted in studies conducted in Iran

(65%), Uganda (55.2%) and Tanzania.8,10,11 Dyspepsia in the productive age group could be due to higher stress among them comparatively.

Abdominal pain (100%) followed by nausea and vomiting (94%) were the most common presenting complaints of the study participants. In a study conducted in Tanzania, epigastric pain (86.1%) was the most common symptom followed by heart burn (58.2%) and nausea (46.6%).11 Three fifth (60%) of the patients had ulcer dyspepsia and two fifth (40%) had non ulcer dyspepsia in the present study. Contradictory findings with higher proportion of non-ulcer dyspepsia were documented in studies conducted in Saudi Arabia (51.8%).Nigeria (79.1%) and Tanzania (61.1%) [6, 9, 11].

Overall prevalence of *H. Pylori* in the present study was 68% and among them, 75% had ulcer dyspepsia and 25% had non-ulcer dyspepsia. In a study conducted in Nigeria, higher prevalence (76.4%) of *H. Pylori* was noted.9 In a study conducted in Kuwait, overall prevalence was lower (49.7%) as compared to the present study.7 Studies conducted in Saudi Arabia (62.8%) and Iran (51.2%) had higher proportion of ulcer dyspepsia patients with H. Pylori.6,8 In a study conducted in Tanzania (89.2%) documented higher *H. Pylori* prevalence among non-ulcer dyspepsia patients [11].

We noted that almost three fourth (73.6%) *H. Pylori* positive patients were males and more than half (51.4%) belonged to productive age group of 18-40 years. Contradictory findings regarding sex and age distribution of *H. Pylori* positive patients was found in studies conducted in Kuwait and Iran. In these studies, *H. Pylori* prevalence was more among females as compared to males.7,8 In the study done in Kuwait, prevalence of *H. Pylori* was at peak in the age group 30-34 years followed by a gradual decrease beyond 35 years of age up to 60 years and above.7 In the study conducted in Iran, the prevalence of *H. Pylori* increased sharply from 5.3% in 30 year old to 19.8% in patients aged more than 45 years [8].

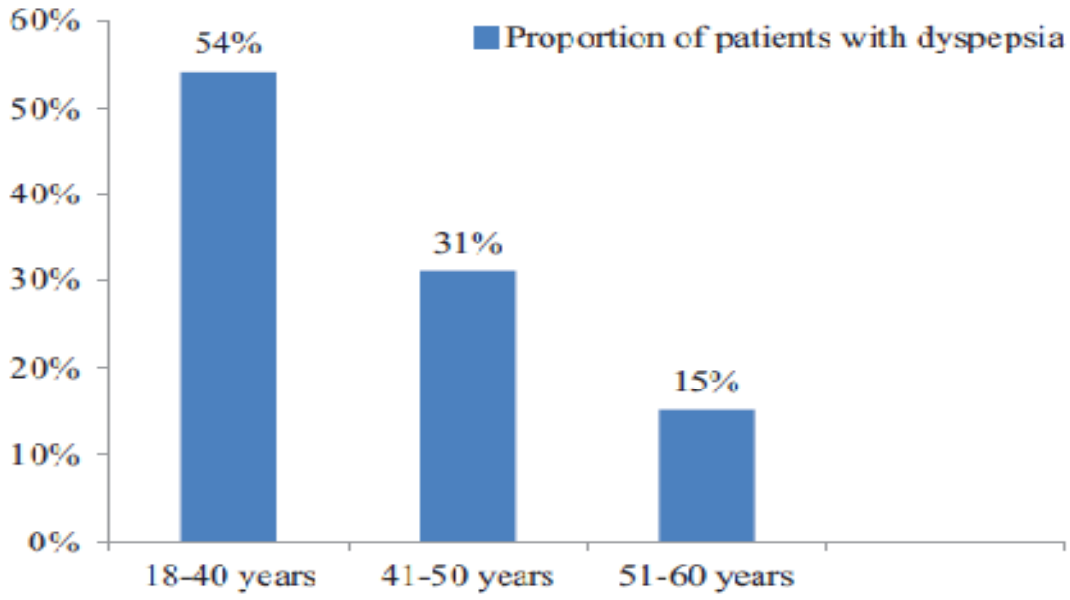

Figure-1: Age distribution of patients with dyspepsia

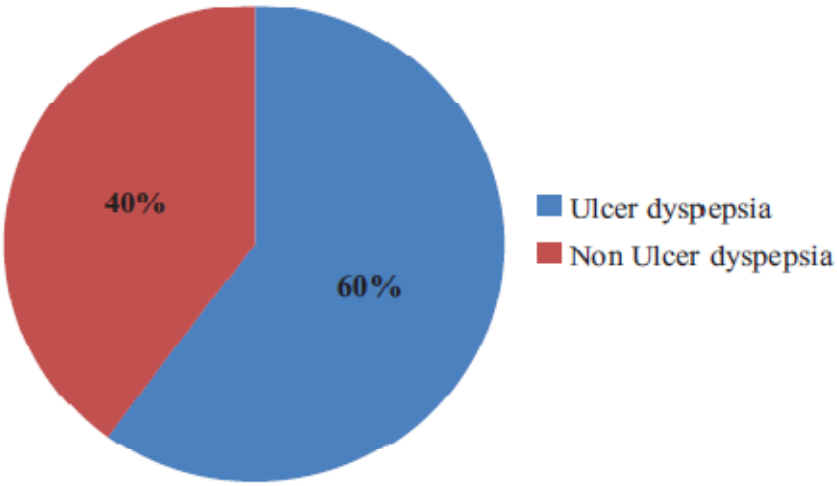

Figure-2: Proportion of patients with different types of dyspepsia as per endoscopic findings

In the present study, significant association was found to be present between *H. Pylori* infection and duodenal ulcers (p 0.001).In a study conducted in Tanzania, significant association was found for duodenal ulcer (p <0.001) and gastritis (p <0.001).11 In a study conducted in Nigeria, no significant association was found between any endoscopic abnormality and *H. Pylori* infection [9].

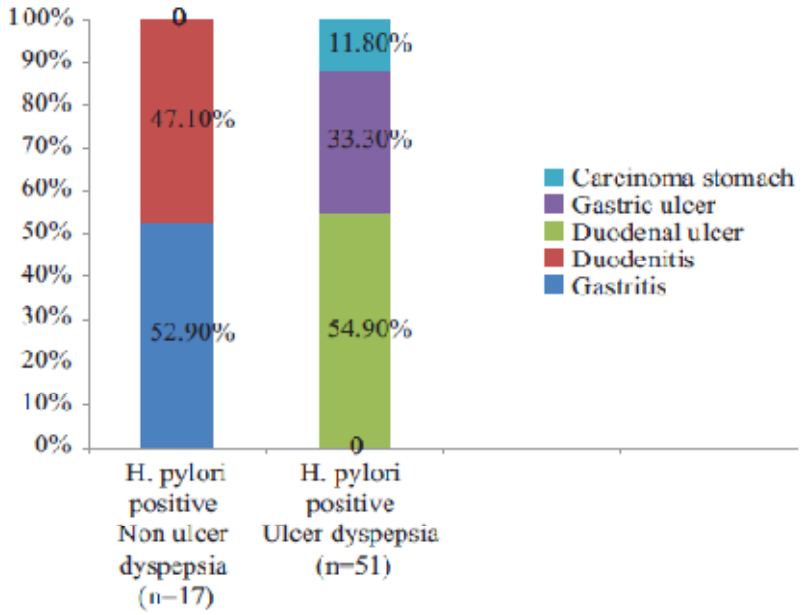

Figure-3: *H. Pylori* prevalence in non-ulcer and ulcer dyspepsia groups

CONCLUSION

The overall prevalence of *H. Pylori* infection in patients of dyspepsia was 68%. The prevalence of *H. Pylori* was higher in ulcer dyspepsia patients. There was a significant association between *H. Pylori* and duodenal ulcers.

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